

**Commonwealth of Kentucky**  
**Division for Air Quality**  
***PERMIT STATEMENT OF BASIS***

FEDERALLY ENFORCEABLE CONDITIONAL MAJOR (DRAFT PERMIT) No. F-06-015

QUEBECOR WORLD, INC.

VERSAILLES, KY

JUNE 29, 2006

SOURCE I.D. #:	021-239-00005
SOURCE A.I. #:	4238
ACTIVITY I.D. #:	APE20040001

**SOURCE DESCRIPTION:**

An application for a Conditional Major operating permit renewal for Quebecor World, Inc. (Quebecor) for the operation of a book printing and binding plant, located at 100 U.S. Bypass 60, Versailles, Kentucky, was received by the Division on September 30, 2003.

Quebecor produces printed materials on 16 lithographic presses that have been installed at the source between January 1968 and July 2005. Emissions from these 16 lithographic presses include Volatile Organic Compounds (VOC) and hazardous air pollutants (HAP). All emissions from the press operations are directed to one of the three existing thermal oxidizers. These control devices have been installed between August 1989 and September 2001. The VOC and HAP destruction efficiency for all three thermal oxidizers is assumed to be a minimum of 98%. Compliance demonstration stack testing conducted in the last five years confirms this destruction efficiency value.

The Standard Industrial Classification (SIC) Codes for this source are 2732, 2752, and 2789, *Commercial Book Printing and Binding*. Quebecor has requested voluntary permit conditions to limit the source's potential to emit (PTE) regulated air pollutants below major source thresholds. Therefore, the source is subject to the provision of 401 KAR 52:030, *Federally enforceable permits for nonmajor sources*. This permit is the renewed issuance of the source's initial Conditional Major operating permit No. F-99-003, issued on March 31, 1999.

**COMMENTS:**

(1) Emission Units: The following is a list of significant emission units at the source:

Thermal Oxidizer	EP	EU	Description	Heat Input Rating (mmBtu/hr)	Date Installed
Geoenergy #1 <sup>1</sup>	50			8.0	04/01/98
		06	#365 2/C Motter - Offset Lithographic Press with Natural Gas Fired Dryer	2.72	01/01/68
		11	#355 4/C Sheeter - Offset Lithographic Press with Natural Gas Fired Dryer	1.22	07/01/69
		13	#320 Schrieber 990 - 4/C Offset Lithographic Press with Natural Gas Fired Dryer	1.42	07/01/05
		34	#380 4/C Cottrell - Offset Lithographic Press with Natural Gas Fired Dryer	3.37	06/20/94
		49	#339 4/C Man-Roland - Offset Lithographic Press with Natural Gas Fired Dryer	2.4	06/08/98
		55	#341 4/C Harris M-1000 (B) - Offset Lithographic Press with Natural Gas Fired Dryer	2.8	04/12/02
		53	#345 4/C Harris M-300 - Offset Lithographic Press with Natural Gas Fired Dryer	1.2	04/01/02
Geoenergy #2 <sup>2</sup>	52			8.0	09/01/01
		24	#356 4/C Mitsubishi - Offset Lithographic Press with Natural Gas Fired Dryer	2.99	10/11/89
		33	#375 4/C Baker Perkins - Offset Lithographic Press with Natural Gas Fired Dryer	7.86	06/20/94
		54	#344 4/C Harris M-300 - Offset Lithographic Press with Natural Gas Fired Dryer	1.20	04/01/02
REECO <sup>3</sup>	25			4.24	08/01/89
		12	#301 4/C Lithoman - Offset Lithographic Press with Natural Gas Fired Dryer	10.5	06/01/05
		14	#335 5/C Toshiba - Offset Lithographic Press with Natural Gas Fired Dryer	2.12	12/01/85
		20	#336 2/C Toshiba - Offset Lithographic Press with Natural Gas Fired Dryer	2.18	02/15/82
		21	#337 5/C Toshiba - Offset Lithographic Press with Natural Gas Fired Dryer	3.67	02/15/84
		51	#340 Harris M-1000 (A) - Offset Lithographic Press with Natural Gas Fired Dryer	2.8	10/15/00
		30	#370 4/C Baker Perkins - Offset Lithographic Press with Natural Gas Fired Dryer	3.29	06/01/93
Boilers					
Boiler #1	01	01	Natural Gas Fired	14.645	1962
Boiler #2	02	02	Natural Gas Fired	14.645	1968
Boiler #3	03	03	Natural Gas Fired	5.21	1969

1. Reflects the emission units (EU) connected to emission point EP50, Geoenergy #1 thermal oxidizer.
2. Reflects the emission units (EU) connected to emission point EP52, Geoenergy #2 thermal oxidizer.
3. Reflects the emission units (EU) connected to emission point EP25, REECO thermal oxidizer.

Waste Paper Collection System	EP	EU	Description	Maximum Capacity	Date Installed
	22	22A	Paper baler # 2 *	Combined 4800 lb/hr of paper trimmings received	1969
	22	22B	Paper baler # 3 *		1969
	22	22C	Paper baler # 5 *		1969
	38	38	Cyclone Paper Separator	1,050 lbs/hr	1995

Note:

\* Each paper baler is equipped with a cyclone, however, the control efficiency of cyclones for paper balers # 2 and # 5 is 0%. The control efficiency of the cyclone for paper baler 3 is 99.9% but the source has no information of process weight rate breakdown by each baler, therefore, the controlled emissions can not be calculated. Therefore, for simplicity, it is assumed that the control efficiency for paper baler #3 is also 0% as a conservative approach. These emission units are in compliance with regulation 401 KAR 61:020 even with no controls.

- (2) The source consists of the following insignificant activities, as defined in 401 KAR 52:030, Section 6:

Emission Point	Description	Applicable Regulation
EP 36	Natural gas fired Sterling Alton furnace rated at 2.5 mmBtu/hr	401 KAR 59:015
EP 37	Natural gas fired Sterling Alton furnace rated at 2.5 mmBtu/hr	401 KAR 59:015
EP 40	Natural gas fired King furnace rated at 2.2 mmBtu/hr	None
EP 41	Natural gas fired King furnace rated at 0.9 mmBtu/hr	None
EP 45	Natural gas fired unit gas heater rated at 0.24 mmBtu/hr	None
EP 46	Natural gas fired unit gas heater rated at 0.3 mmBtu/hr	None
EP 16A – 16J	Ten Hot melt glue pots	None
EP 28	Spray booth dye for bookends	None
EP 47 & 48	Two (2) diesel fire pumps	None
EP 43	Shrink Wrap operation	None
EP 44	Bookbinding with baghouse	401 KAR 61:020
EP 15	Maintenance Parts Cleaner	None
EP 39	Backup Cyclone (No. 4) and Baler (no. 4)	401 KAR 59:010

- (2) Type of Control and Efficiency:

All emissions from the press operations are directed to one of the three thermal oxidizers. These control devices have been installed between August 1989 and September 2001. The VOC and HAP destruction efficiency for all three thermal oxidizers is assumed to be 98%. Compliance demonstration stack testing conducted in the last five years confirms this destruction efficiency value as stated by Quebecor in the renewal application.

- (3) Emission Factors:

AP-42, Chapter 1.4, Tables 1.4-1, -2 and -3 were used to determine the natural gas combustion emissions from the thermal oxidizers, boilers and dryers associated with

printing and heaters as insignificant activities. Potential VOC and HAPs emissions from the lithographic printing presses are calculated based upon the mass balance provided by the source. Particulate emissions from the paper balers are calculated based on material balance.

(4) Existing Approvals:

- a) *Federally-Enforceable Conditional Major Permit, F-97-016, issued on December 12, 1997.*

This permit was the first source-wide air quality operating approval issued pursuant to 401 KAR 52:030, Federally-enforceable permits for non-major sources. The permit specified terms and conditions for the control of emissions from the lithographic printing presses such that the requirements of 401 KAR 52:020, Title V permits, do not apply.

- b) *Minor Permit Revision, Log # 53269, issued on October 30, 2000.*

This minor permit revision was regarding construction of a new lithographic printing press identified as Harris M1000 Press.

- c) *Minor Permit Revision, Log #s 54263 and 54433, issued on April 3, 2002.*

This minor permit revision was regarding construction of New GeoTherm Incinerator and two lithographic printing presses identified as Harris M-300 Presses, and removal of 3 catalytic incinerators.

- d) *Minor Permit Revision, Log # 54572, issued on June 10, 2002.*

This minor permit revision was regarding the construction of a new lithographic printing press identified as Harris M-1000B (341) and removal of Hantscho Press (363).

- e) *Request for administrative changes submitted by permittee to KDAQ on September 1, 2004.*

This request pertained to the additional information to be incorporated into the renewal permit. Following is the additional information which was submitted:

- Administrative information showing new owner address in Montreal, Quebec.
- Process information regarding total of 21,000 tons of waste paper potentially baled at plant and shipped for recycle.
- Process emission data for each stack and emission point showing the change in status from controlled to several points being uncontrolled.
- Insignificant operations showing the addition of Emission Point 39 (backup cyclone) as not used in normal production.
- Figures showing emission points associated with waste paper balers and dust collection system.

- f) *Request for minor permit change submitted by permittee to KDAQ on April 27, 2005.*

This request pertained to replacement of two existing GOSS lithographic printing presses, #338 A and #338B, as EP 25(12) and 25(13), with two new lithographic printing presses identified as Lithoman Lithographic press (#301) and Schreiber 990 Lithographic press (#320). VOC/HAP emissions from press #301 will be controlled by the existing REECO Oxidizer (EP 25), and will retain the existing identifier, EP 25(12) (the identifier EP 25(13) will be eliminated from this source). VOC/HAP emissions from press #320 will be controlled by Geoenergy # 1 Oxidizer (EP 50), and will be identified as EP 50(13). The permittee has provided information indicating that the replacement of two presses will result in no net increase in VOC, single HAP, or total HAPs emissions from this source. The permitted level of source wide emissions will respectively remain unchanged at 90 tons/year, 9 tons/year and 22.5 tons/year, and the source will remain subject to 401 KAR 52:030 - *Federally enforceable permits for nonmajor sources.*

(5) Applicable Regulations:

- a) The three boilers (01, 02 and 03) are subject to 401 KAR 61:015, *Existing indirect heat exchangers*, which is applicable to existing indirect heat exchangers with a capacity of 250 mmBtu/hr or less and commencing before April 1972. The following allowable particulate, opacity and sulfur dioxide (SO<sub>2</sub>) emission limits are included in the permit.

- i. Pursuant to 401 KAR 61:015, Section 4(1), particulate emission rate is based on the following equation for each boiler:

$$\text{PM Emission rate (lb/mmBtu)} = 1.2825 \times (\text{total heat input rating for the source})^{-0.2330}$$

*For Boiler 01 (rated at 14.645 mmBtu/hr and constructed in 1962):*

$$\begin{aligned}\text{PM Emission rate} &= 1.2825 \times (14.645)^{-0.2330} \\ &= 0.68 \text{ lb/mmBtu}\end{aligned}$$

*For Boiler 02 (rated at 14.645 mmBtu/hr and constructed in 1968):*

$$\begin{aligned}\text{PM Emission rate} &= 1.2825 \times (29.29)^{-0.2330} \\ &= 0.58 \text{ lb/mmBtu}\end{aligned}$$

*For Boiler 03 (rated at 5.21 mmBtu/hr and constructed in 1969):*

$$\begin{aligned}\text{PM Emission rate} &= 1.2825 \times (29.29)^{-0.2330} \\ &= 0.56 \text{ lb/mmBtu}\end{aligned}$$

- ii. Pursuant to 401 KAR 61:015, Section 5(1), SO<sub>2</sub> emission rate is based on the following equation for each boiler:

$$\text{SO}_2 \text{ Emission rate (lb/mmBtu)} = 8.0681 \times (\text{total heat input rating for the source})^{-0.3047}$$

*For Boiler 01 (rated at 14.645 mmBtu/hr and constructed in 1962):*

$$\begin{aligned}\text{SO}_2 \text{ Emission rate} &= 8.0681 \times (14.645)^{-0.3047} \\ &= 3.56 \text{ lb/mmBtu}\end{aligned}$$

*For Boiler 02 (rated at 14.645 mmBtu/hr and constructed in 1968):*

$$\begin{aligned}\text{SO}_2 \text{ Emission rate} &= 8.0681 \times (29.29)^{-0.3047} \\ &= 2.88 \text{ lb/mmBtu}\end{aligned}$$

*For Boiler 03 (rated at 5.21 mmBtu/hr and constructed in 1969):*

$$\begin{aligned}\text{SO}_2 \text{ Emission rate} &= 8.0681 \times (29.29)^{-0.3047} \\ &= 2.74 \text{ lb/mmBtu}\end{aligned}$$

- iii. Pursuant to 401 KAR 61:015, Section 4(2), opacity of visible emissions from Boilers 01, 02, and 03, each shall not exceed forty (40) percent.

*(Note: Initial Conditional Major Permit F-99-003 determined the particulate and SO<sub>2</sub> emission rate limitations for all three boilers based on the combined heat input capacity for the three boilers. However, these units were not installed on the same date and, pursuant to 401 KAR 61:015, Section 3(1), the determination should be based on the total source heat input rate at the time each boiler is installed at the source. This is the determination method reflected above.)*

b) 401 KAR 61:020, Existing Process Operations

Pursuant to 401 KAR 61:020, Section 1, the requirements of this rule apply to each affected facility, associated with a process operation, which is not subject to another emission standard with respect to particulates in 401 KAR Chapter 59, commenced before July 2, 1975. The requirements of this rule are included in the permit for paper balers identified as EP 22.

Pursuant to 401 KAR 61:020, Section 3(1)(a), no person shall cause, suffer, allow, or permit any continuous emission into the open air from a control device or stack associated with any affected facility which is equal to or greater than forty (40) percent opacity.

Mass Emission Limit pursuant to 401 KAR 61:020 Section 3(2)(a): For process rates greater than or equal to 1,000 lbs/hr but less than 60,000 lbs/hr, the allowable emissions of particulate matter shall not exceed :  $4.10 \times (\text{Tons Processed})^{0.67}$  lbs/hr. For processing rates of 1000 lbs/hr or less, the allowable emission rate is 2.58 lbs/hr.

c) 401 KAR 59:010, New Process Operations

Pursuant to 401 KAR 59:010, Section 1, the requirements of this rule apply to each affected facility, associated with a process operation, which is not subject to another emission standard with respect to particulates in 401 KAR Chapter 59, commenced on or after July 2, 1975. The requirements of this rule are included in the permit for Cyclone Paper Separator identified as EP 38.

Pursuant to 401 KAR 59:010, Section 3(1)(a), no person shall cause, suffer, allow, or permit any continuous emission into the open air from a control device or stack associated with any affected facility which is equal to or greater than twenty (20) percent opacity.

Mass Emission Limit pursuant to 401 KAR 59:010 Section 3(2)(a): For process rates greater than or equal to 1,000 lbs/hr but less than 60,000 lbs/hr, the allowable emissions of particulate matter shall not exceed :  $3.59 \times (\text{Tons Processed})^{0.62}$  lbs/hr. For processing rates of 1000 lbs/hr or less, the allowable emission rate is 2.34 lbs/hr.

- d) 401 KAR 52:030 - *Federally enforceable permits for nonmajor sources*. This applies to sources that accept permit conditions that are legally and practically enforceable to limit their potential to emit (PTE) below the major source thresholds that would make them subject to 401 KA 52:020. The enforceable emission limitations and related conditions are incorporated into this permit.
- e) 401 KAR 63:020, *Potentially hazardous matter or toxic substances*. This rule applies to each process unit which emits or may emit potentially hazardous matter or toxic substances. Proper operation of the three (3) thermal oxidizer control systems at this source, consistent with the related monitoring, record keeping and reporting requirements included in the permit, shall result in compliance with this rule for emissions due to printing.

(6) Non-Applicable Regulations:

- a) 401 KAR 60:005, Sections 2 and 3(1)(e) incorporates by reference *40 CFR Part 60.40c to 60.48c (Subpart Dc)*, “Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units”

The requirements of 40 CFR 60.40c, Subpart Dc, do not apply to the three (3) boilers (01, 02 and 03) at the source because each was constructed before the rule applicability date of June 9, 1989.

- b) 401 KAR 60:005, Sections 2 and 3(1)(uu) incorporates by reference *40 CFR Part 60.430 to 60.435 (Subpart QQ)*, “Standards of Performance for the Graphic Arts Industry: Publication Rotogravure Printing”

The requirements of 40 CFR 60.430, Subpart QQ, do not apply to the printing presses at the source because none of the presses are publication rotogravure printing presses.

- c) 401 KAR 59:210, *New fabric, vinyl and paper surface coating operations*, and 401 KAR 61:122, *Existing fabric, vinyl and paper surface coating operation*

The requirements of these rules, as they respectively apply to new and existing operations, do not apply to the lithographic printing presses at this source. Neither of these rules apply to “printing” as the term is defined in both rules. Further, the term “printing”, as defined, applies only to flexographic and rotogravure processes, which are not lithographic offset printing processes.

- d) 401 KAR 59:212, *New graphic arts facilities using rotogravure and flexography*, and 401 KAR 61:122, *Existing graphic arts facilities using rotogravure and flexography*

The requirements of these rules, as they respectively apply to new and existing operations, do not apply to the lithographic printing presses at this source. The term “printing”, as defined in each rule, applies only to flexographic and rotogravure processes, which are not lithographic offset printing processes.

- e) 401 KAR 63:002, Section 2, requires affected sources to comply with the applicable Part 63 NESHAP, *40 CFR Part 63.7480 (Subpart DDDDD)*, “*National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters*”

Boilers 01, 02, and 03 are not subject to the requirements of 40 CFR Part 63, Subpart DDDDD, because the source requested voluntary limits such that combined HAP emissions are below 25 tons per year and any individual HAP emission is below 10 tons per year. Therefore, this is an area source of HAP emissions, as defined at 40 CFR 63.2, and Subpart DDDDD is not applicable.

- f) 401 KAR 63:002, Section 2, requires affected sources to comply with the applicable Part 63 NESHAP, *40 CFR Part 63.820 (Subpart KK)*, “*National Emission Standards for the Printing and Publishing Industry*”

Printing operations at this source are not subject to the requirements of 40 CFR Part 63, Subpart KK, because the source requested voluntary limits such that combined HAP emissions are below 25 tons per year and any individual HAP emission is below 10 tons per year. Therefore, this is an area source of HAP emissions, as defined at 40 CFR 63.2, and Subpart KK is not applicable.

- g) 401 KAR 63:002, Section 2, requires affected sources to comply with the applicable Part 63 NESHAP, *40 CFR Part 63.460 (Subpart T)*, “*National Emission Standards for Halogenated Solvent Cleaning*”

Maintenance Parts Cleaning operation (EP 15) at this source is not subject to the requirements of 40 CFR Part 63, Subpart T, because this operation determined to be an insignificant activity, does not use any chlorinated solvents.

- h) 401 KAR 59:185, *New solvent metal cleaning equipment*. The provisions of this subpart do not apply to the Maintenance Parts Cleaner, as an insignificant activity, since the source is not located in a county or portion of a county designated as nonattainment for ozone.
- i) 40 CFR 64, Compliance Assurance Monitoring (CAM), does not apply to any emission unit because this source is being approved to operate under a Conditional Major permit and, pursuant to 40 CFR 64.2(a), the requirements of this rule are applicable only to a source required to obtain a Title V (Part 70 or 71) permit.

#### **EMISSION AND OPERATING CAPS DESCRIPTION:**

Woodford County is designated as attainment for all criteria pollutants. To preclude the applicability of 401 KAR 52:020, *Title V permits*, the following source-wide emission limits shall apply:

- a. Volatile organic compound (VOC) emissions: 90 tons per year;
- b. Combined hazardous air pollutant (HAP) emissions: 22.5 tons per year; and
- c. Single hazardous air pollutants (HAPs) emissions: 9 tons per year.

Compliance with the above limits shall also preclude the applicability of 401 KAR 51:017, *Prevention of significant deterioration of air quality*. The permittee shall continue to use a control device (three (3) thermal oxidizers) in order to comply with the specified emission limits. Related enforceable monitoring, record keeping and reporting requirements are included in the permit. The potential to emit all other criteria pollutants will be less than 100 tons per year each. Compliance with the VOC limit shall make this source a synthetic minor source pursuant to 401 KAR 51:017, *Prevention of significant deterioration of air quality*. Compliance with these permit limits shall also make the requirements of 401 KAR 52:020, Title V permits, not applicable to this source.

#### **PERIODIC MONITORING AND TESTING:**

In order to make the conditional major/synthetic minor emission limits enforceable as a practical matter, the VOC, single HAP and combined HAPs emissions shall be controlled by the continual operation of the three (3) thermal oxidizers (REECO, Geoenergy #1 and Geoenergy #2). The continuous operation of the three (3) thermal oxidizers shall ensure compliance with the conditional major/synthetic minor status of this source. A compliance test for the Geoenergy #2 oxidizer was conducted by Quebecor in January 2002, however, DAQ has no record of stack testing of REECO and Geoenergy #2 Oxidizers. The permittee shall test each thermal oxidizer at least once each permit term, inclusive of a test required during this permit term as indicated in the permit.

To demonstrate compliance with the source-wide emissions limits, the permittee shall continuously monitor the combustion chamber temperature in each thermal oxidizer, and maintain records of monthly and consecutive twelve (12) month totals of VOC and/or HAP containing materials usage. The calculation must be completed by the end of the month following the month in question and the consecutive 12-month totals include the totals for the month in question plus the totals for the previous 11 months.

#### **OPERATIONAL FLEXIBILITY:**

The primary thermal oxidizer for each lithographic press is as represented in the Table above under Emission Point Number and Description. As a backup system, the source has created a cross connection between the two Geoenergy thermal oxidizers. This duct connection provides secondary control for the ten presses connected to these two control devices. In the unlikely event that a thermal oxidizer fails, the press on that unit would be diverted temporarily to the other control device. There is no alternate operating scenario for the REECO thermal oxidizer.

#### **CREDIBLE EVIDENCE:**

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.